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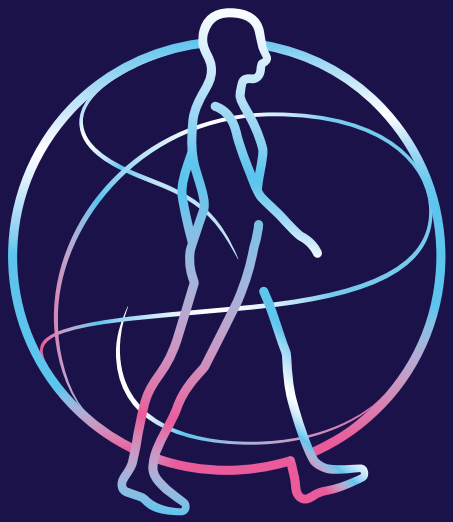
Medtronic

Clinical paper review
for Health care professionals

"Selective Arterial Embolization with Ethylene–Vinyl Alcohol Copolymer for Control of Massive Lower Gastrointestinal Bleeding: Feasibility and Initial Experience".

Urbano J, et al. 2014



Highlights:

1. Single center, retrospective study
2. 31 consecutive patients
3. Superselective arterial embolization with Onyx™ (n=30)
4. Mean follow-up: 23.7 months
5. 96.7% clinical success, 93.5% technical success, 100% control of bleeding.

Background

- Embolization is currently proposed as the first step in the treatment of severe, acute, life-threatening lower gastrointestinal bleeding (LGIB) in cases in which the endoscopic approach is not possible or not useful.
- Embolization to treat LGIB has been performed with gelatin sponges; particles; coils; micro-coils; and glue.
- Ethylene-vinyl alcohol copolymer Onyx™ Liquid Embolic System (LES) is a liquid embolic agent that has some theoretical advantages over the other embolic agents, owing to its controlled delivery injection, nonadhesive nature, high radiopacity, and high haemostasis effect.

Study objective

To evaluate the efficacy, safety, and clinical outcomes of superselective embolization using Onyx™ as the primary treatment for acute and massive LGIB.

Materials and methods

Study design

- Single center, retrospective study including 31 consecutive patients with acute severe LGIB between January 2008 and October 2013.
- 30/31 patients underwent superselective arterial embolization with Onyx™

Bleeding Diagnosis

- The causes and bleeding sites were investigated using multidetector computed tomography (CT). Active bleeding was defined as the presence of active extravasation of contrast-enhanced blood, characterized as a hyperattenuating intraluminal focal collection, visible in the arterial and portal venous phase.
- The most common causes of bleeding were diverticular disease (n=15) and left colon diverticula (n=11).
- Sites of bleeding have been inferior mesenteric artery in 12 cases and superior mesenteric artery in 19 cases.

Embolization technique

Selective digital subtraction angiography was performed after multidetector CT angiography. A4-F catheter and a 0.035-inch hydrophilic Microfocus J-shaped wire were used for direct selective catheterization. After the source of bleeding had been verified, a dimethyl sulfoxide (DMSO)–compatible 0.018-inch,0.014-inch,or 0.010-inch microcatheter was advanced coaxially through the 4-F catheter to reach the vasa recta as close as possible to the bleeding site. Then, a 6% concentration of Onyx™-18 was injected through the microcatheter under fluoroscopic control. After, a control angiography was performed through the 4-F catheter.

Analysis and Follow-up

- The technical success (cessation of activated contrast media extravasation from the bleeding site without nontargeted embolization in surrounding vessels) rate, clinical success (resolution of the signs and symptoms of bleeding) rate, procedure-related complications, and clinical outcomes were evaluated.
- As a part of this study, telephone calls were made to all patients to determine if they had experienced any GI bleeding, surgical treatment, or other remarkable GI symptom after discharge.
- The mean follow-up time was 23.7 months (range 1–71 months).

Results

- The total volume of Onyx™ necessary for haemostasis of the bleeding site was never >1 mL.
- Immediate control angiography showed successful occlusion of the bleeding site in all patients.
- None of the patients who underwent embolization required any other invasive treatment for bleeding control during the follow-up period.
- No major complications and no procedure-related mortality.
- The 30-day rebleeding rate was 10%.
- An oncologic patient needed surgical resection, performed 3 months after the embolization. No other patient needed surgery during the follow-up period

100%

of the patients experienced immediate and long-term **control of bleeding**

96.7%

clinical success
defined as resolution of the bleeding signs and symptoms

93.5%

technical success rate
as cessation of activated contrast media extravasation from the bleeding site without nontargeted embolization in surrounding vessels

Conclusions

Control of massive LGIB using superselective embolization with Onyx™ is feasible and safe.

Reference

Urbano J, et al. "Selective Arterial Embolization with Ethylene-Vinyl Alcohol Copolymer for Control of Massive Lower Gastrointestinal Bleeding: Feasibility and Initial Experience".J Vasc Interv Radiol. 2014 ;25(6):839-46

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Medtronic

Europe
Medtronic International Trading Sàrl.
Route du Molliau 31
Case postale
CH-1131 Tolochenaz
www.medtronic.eu
Tel: +41 (0)21 802 70 00
Fax: +41 (0)21 802 79 00

medtronic.eu